



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,210	09/19/2001	Karsten Reihs		5185

22850 7590 03/29/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

TSOY, ELENA

ART UNIT PAPER NUMBER

1762

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary

Application No.

09/857,210

Applicant(s)

REIHS ET AL.

Examiner

Elena Tsoy

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Response to Amendment

1. Amendment filed on March 16, 2004 has been entered. Claims 13-31 are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 13-20, 24, 25, 27, 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa et al (US 6,333,074) in view of Mirra et al (US 4,331,487), further in view of JP 04168904.

Ogawa et al '074 disclose a method for producing a surface with super-water-repellency (See column 2, lines 20-22) on substrates (support material) such as aluminum (See column 10, lines 40-41) comprising roughening the surface of the substrate by any suitable techniques including sand blasting to form surface irregularities of at least 0.1-50 microns (See Figs. 4A, 4B; column 7, lines 45-56; column 10, lines 40-44; column 11, lines 4-8), then coating the roughened substrate with a hydrophobic (oleophobic) fluorosilane film (See column 10, lines 42-67). The contact angle of obtained surface is 174 degree (ultraphobic) (See column 10, line 67). The method is applicable to fin surfaces (See column 1, lines 20-22). Ogawa et al '074 further teach that second water-repellent coating film comprising particles of 5 nm-100 microns can be formed over the fluorosilane film to produce super-water-repellent surface having irregularities of 0.1-100 microns (See column 6, lines 30-52). In other words, super-water-repellent surface

Art Unit: 1762

having irregularities of 0.1-100 microns can be achieved by sand blasting and adding particles to the surface.

Ogawa et al '074 fail to teach that a blasting agent has particle size of less than 200 microns, and the blasting agent is partially incorporated into the surface of the metal substrate (Claim 13).

Mirra et al teach that in the conventional practice of sand blasting, abrasive particles are often imbedded in the metal surface (See column 1, lines 61-64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out a conventional sand blasting in Ogawa et al '074 using abrasive particles of less than 100 microns to produce surface irregularities of less than 100 microns since Mirra et al teach that in the conventional practice of sand blasting, abrasive particles are often imbedded in the metal surface, so that to achieve the desired super-water-repellent surface, as taught by Ogawa et al '074.

Ogawa et al '074 in view of Mirra et al fail to teach that in a conventional sand blasting process, corundum (Claims 16, 17) with sharp edges (Claims 18) having a particle size of less than 200 microns (Claim 13) or less than 130 microns (Claim 15) can be used as abrasive particles; and blasting is carried out at pressure is 3-7 bar and at a distance from the die head to the surface of 1-3 cm (Claim 19) for 0.1-10 min/cm² (Claim 20).

JP 04168904 teaches that corundum having a particle size of 60-300 mesh (250-50 microns) is suitable for blasting aluminum surface to form surface irregularities in the range of 0.5-50 microns (See Abstract).

Art Unit: 1762

It is held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) (selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious); *Ryco, Inc. v. Ag-Bag Corp.*, 857 F.2d 1418, 8 USPQ2d 1323 (Fed. Cir. 1988).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used corundum (including corundum having sharp edges) having a particle size of 60-300 mesh (250-50 microns) for sand blasting a substrate surface in a method of Ogawa et al '074 in view of Mirra et al since JP 04168904 teaches that corundum having a particle size of 60-300 mesh (250-50 microns) is suitable for blasting a surface to form surface irregularities in the range of 0.5-50 microns.

As to claims 19, 20, one of ordinary skill in the art at knows that pressure, time and distance are result-effective parameters in a surface roughening process.

It is held that it is not inventive to discover the optimum or workable ranges of result-effective variables by routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant blasting parameters (including those of claims 19 and 20) in a method of Ogawa et al '074 in view of Mirra et al in view of JP 04168904 through routine experimentation depending on particular application in the absence of a showing of criticality.

4. **Claims 21, 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa et al (US 6,333,074) in view of Mirra et al (US 4,331,487), further in view of JP 04168904, and further in view of Li et al (US 5,751,541).

Ogawa et al '074 in view of Mirra et al in view of JP 04168904 fails to teach that the roughened surface is coated with a thin layer of noble metal such as gold as adhesion promoter layer (Claims 21, 22).

Li et al teach that it is well known in the art that coatings of some materials could be successfully fabricated only on noble metal substrates, such as platinum, or gold, and could not successfully be made on non-noble metal substrates because the resulting films yielded poor adhesion and high resistance (See column 1, lines 32-43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a layer of gold as an adhesion promoting layer in a method of Ogawa et al '074 in view of Mirra et al in view of JP 04168904 depending on a material of coating to be adhered with the expectation of providing the desired improved adhesion of the coating, as taught by Li et al.

5. **Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa et al (US 6,333,074) in view of Mirra et al (US 4,331,487), further in view of JP 04168904, further in view of Li et al (US 5,751,541), and further in view of Gesing et al (US 3,867,203).

Ogawa et al '074 in view of Mirra et al in view of JP 04168904 in view of Li et al fail to teach that the roughened surface is coated with a thin layer of noble metal as adhesion promoter layer by precipitation.

Gesing et al teach that a gold layer can be uniformly deposited over entire substrate surface by precipitation from a diluted gold solution (See column 5, lines 1-5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited a thin layer of gold onto a substrate surface in a method of Ogawa et al '074 in view of Mirra et al in view of JP 04168904 in view of Li et al by precipitation from a diluted gold solution with the expectation of providing the desired uniform covering of the entire substrate surface, as taught by Gesing et al.

6. **Claims 26-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa et al (US 6,333,074) in view of Mirra et al (US 4,331,487), further in view of JP 04168904, and further in view of Ogawa et al (US 5,324,566)

Ogawa et al '074 in view of Mirra et al in view of JP 04168904 fail to teach that the method is applicable to various material surfaces such as metal surfaces (rust protection) (Claim 28), surface of vehicle parts (Claims 26, 31), building materials, e.g. roof (Claim 27), transparent glass surface (Claim 30).

Ogawa et al '566 teach that a hydrophobic and oleophobic anti-contaminating film (See column 1, lines 11-13; column 11, lines 66-68) using a method of roughening and coating with a fluorosilane resin can be produced not only on metal, but also on glass, ceramic or plastic (See column 12, lines 7-12). The method is applicable to various material surfaces (See column 13, lines 1-6) such as surface of vehicle parts (See column 14, lines 22-40), building materials, e.g. roof (See column 14, lines 46-54). In other words, Ogawa et al '566 teach that that metal surface is functionally equivalent to glass, ceramic or plastic for applying ultraphobic coating using a method of roughening and coating with a fluorosilane resin (See column 7, lines 39-47).

Art Unit: 1762

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used glass, ceramic, plastic or any metal in Ogawa et al '074 in view of Mirra et al in view of JP 04168904 since Ogawa et al '566 teach that that metal surface is functionally equivalent to glass, ceramic or plastic for applying ultraphobic coating using a method of roughening and coating with a fluorosilane resin, and the selection of any of these known materials as substrate Ogawa et al '566 teach that that metal surface is functionally equivalent to glass, ceramic or plastic for applying ultraphobic coating using a method of roughening and coating with a fluorosilane resin in Ogawa et al '074 in view of Mirra et al in view of JP 04168904 would be within the level of ordinary skill in the art.

Response to Arguments

7. Applicant's arguments with respect to claims 13-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period


Art Unit: 1762

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (571) 272-1429. The examiner can normally be reached on Mo-Thur. 9:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Elena Tsoy
Examiner
Art Unit 1762

March 22, 2004